CLAIMS

1. A transparent substrate, especially of the glass type, which comprises a coating that contains at least one layer C based on silicon or aluminum [nitride, carbonitride, oxynitride or oxycarbonitride] or on a mixture of the two, which is surmounted by a cover layer, characterized in that the cover layer is an oxide-based mechanical protection layer, this oxide being optionally oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided.

2. The substrate as claimed in claim 1, characterized in that the protective oxide layer advantageously contains at least one element chosen from Ti, Zn, Sn, Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Bi, Ce, Ti, Zr, Nb, Ta and Hf.

3. The substrate as claimed in claim 1 or 2, characterized in that the protective layer contains at least one optionally nitrided titanium oxide.

4. The substrate as claimed in the preceding claim, characterized in that said titanium oxide contains another metal M, such as aluminum (compounds of formula $TiM_pO_xN_y$ where p and y may be zero).

5. The substrate as claimed in claim 3 or 4, characterized in that the titanium oxide is chosen from TiO_2, TiO_x where $1 \leq x \leq 2$, or TiO_xN_y where $1 \leq x \leq 2$ and $0.5 \leq y \leq 1$.

6. The substrate as claimed in any one of the preceding claims, characterized in that the protective layer includes at least one oxide containing at least zinc and optionally at least one other element, optionally doped by at least one other element chosen from Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Ce, Ti, Zr, Nb, Hf and Ta, this oxide being optionally oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided.

7. The substrate as claimed in the preceding claim, characterized in that the oxide is a mixed oxide based on zinc and another metal, especially one based on zinc and tin ($ZnSnO_x$) or on zinc and titanium ($ZnTiO_x$) or on zinc and zirconium ($ZnZrO_x$).

8. The substrate as claimed in the preceding claim, characterized in that the zinc-based mixed oxide is doped by at least one other element chosen from Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Ce, Ti, Zr, Nb, Hf and Ta.

9. The substrate as claimed in any one of the preceding claims, characterized in that the protective layer includes at least one oxide containing at

least zirconium, especially a Zr-based mixed oxide, optionally including another metal, this oxide being optionally oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided.

10. The substrate as claimed in the preceding claim, characterized in that the oxide containing at least zirconium is doped by at least one other element chosen from Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Ce, Ti, Zn, Nb, Hf and Ta.

11. The substrate as claimed in any one of the preceding claims, characterized in that the mechanical protection cover layer is made up from a superposition of oxide layers, such as especially a combination of ZnO/TiO_2, $Zn_rSn_sSb_tO_x/TiO_2$, $Zn_rSn_sAl_uO_x/TiO_2$ and $Zn_rZr_vO_x/TiO_2$ layers.

12. The substrate as claimed in any one of the preceding claims, characterized in that the oxide layer has a thickness of around 15 nm or less, preferably less than or equal to 10 nm.

13. The substrate as claimed in any one of the preceding claims, characterized in that the layer(s) C may furthermore contain at least one other metallic element such as aluminum.

14. The substrate as claimed in any one of the preceding claims, characterized in that the or each layer C has a thickness of around 5 to 60 nm.

15. The substrate as claimed in any one of the preceding claims, characterized in that the coating has an antireflection function or a solar-control function or an energy-control function of the low-emissivity type using at least one functional layer, especially a metallic layer, which reflects some of the radiation of the solar spectrum.

16. The substrate as claimed in any one of the preceding claims, characterized in that it includes at least one metallic or metal-nitride-based functional layer.

17. The substrate as claimed in any one of the preceding claims, characterized in that the coating includes the dielectric final sequence: oxide/silicon nitride/oxide, especially $ZnO/Si_3N_4/ZnO$.

18. The substrate as claimed in any one of the preceding claims, characterized in that the multilayer has the following sequence:

$Si_3N_4/ZnO/Ag/ZnO/Si_3N_4$/cover layer

or $Si_3N_4/ZnO/Ag/ZnO/Si_3N_4/ZnO/Ag/ZnO/Si_3N_4$/cover layer

optionally with a metal blocking layer in contact with at least one of the silver layers.

19. The substrate as claimed in any one of claims 15 to 18, characterized in that the coating substantially preserves its properties, especially its optical properties, after a heat treatment.

20. A glazing assembly incorporating at least one substrate as claimed in any one of the preceding claims, especially in a multiple glazing or laminated glazing configuration.

21. A process for improving the mechanical resistance of a transparent substrate, especially a glass substrate, which comprises a multilayer that includes at least one dielectric layer C based on a silicon or aluminum [nitride, carbonitride, oxynitride or oxycarbonitride] or on a mixture of the two, characterized in that an oxide-based layer is deposited on at least one dielectric layer C, this oxide optionally being oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided.

22. The use of an oxide-based coating, this oxide optionally being oxygen-substoichiometric and/or optionally nitrided, in order to improve the mechanical resistance of a transparent substrate, especially a glass substrate, which comprises a multilayer coating that includes at least one layer C based on a silicon or aluminum [nitride, carbonitride, oxynitride or oxycarbonitride] or on a mixture of the two.